

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original): An optical compensation sheet comprising at least two optically anisotropic layers each formed by orienting an optically anisotropic compound, the orientation direction in the optically anisotropic layer plane of the optically anisotropic compound in the two optically anisotropic layers intersecting each other at an angle of from 80 to 100 degrees,

wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet,

one of the two optically anisotropic layers, when the optically anisotropic compound is uniaxial, is oriented so that a first angle of the optic axis of the uniaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that a second angle of a direction giving maximum refractive index of the biaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, and

the other optically anisotropic layer, when the optically anisotropic compound is uniaxial, is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that the second angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

2. (original): The optical compensation sheet of claim 1, wherein the optically anisotropic compound is a liquid crystal compound.

3. (original): The optical compensation sheet of claim 2, wherein the optically anisotropic compound is a positive uniaxial liquid crystal compound, the at

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least two optically anisotropic layers each are formed by orienting the positive uniaxial liquid crystal compound, and the orientation direction in the optically anisotropic layer plane of the liquid crystal compound in the two optically anisotropic layers intersects each other at an angle of from 80 to 100 degrees, and wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet, one of the two optically anisotropic layers is oriented so that the first angle of the optic axis of the liquid crystal compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet and the other optically anisotropic layer is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

4. (original): The optical compensation sheet of claim 2, wherein the optically anisotropic compound is a biaxial liquid crystal compound, the at least two optically anisotropic layers each are formed by orienting the biaxial liquid crystal compound, and the orientation direction in the optically anisotropic layer plane of the liquid crystal compound in the two optically anisotropic layers intersects each other at an angle of from 80 to 100 degrees, and wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet, one of the two optically anisotropic layers is oriented so that the second angle of a direction giving maximum refractive index of the liquid crystal compound molecule to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet and the other optically anisotropic layer is oriented so that the second angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

5. (original): The optical compensation sheet of claim 2, wherein the optically anisotropic compound is a negative uniaxial liquid crystal compound, the at least two optically anisotropic layers each are formed by orienting the negative uniaxial liquid crystal compound, and the orientation direction in the optically anisotropic layer plane of the liquid crystal compound in the two optically anisotropic

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layers intersects each other at an angle of from 80 to 100 degrees, and wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet, one of the two optically anisotropic layers is oriented so that the first angle of the optic axis of the liquid crystal compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet and the other optically anisotropic layer is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

6. (original): The optical compensation sheet of claim 2, wherein the at least two optically anisotropic layers comprises a first optically anisotropic layer formed by orienting a positive uniaxial liquid crystal compound and a second optically anisotropic layer formed by orienting a biaxial liquid crystal compound, and the orientation direction in the optically anisotropic layer plane of the two liquid crystal compounds in the first and second optically anisotropic layers intersects each other at an angle of from 80 to 100 degrees, and wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet, the first optically anisotropic layer is oriented so that the first angle of the optic axis of the positive uniaxial liquid crystal compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, and the second optically anisotropic layer is oriented so that the second angle of a direction giving maximum refractive index of the biaxial liquid crystal compound molecule to the optical compensation sheet plane decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

7. (original): The optical compensation sheet of claim 1, providing a wavelength dispersion property satisfying the following formulae (2) and (3):

formula (1)

$$R_e = (n_{x1} - n_{y1}) \times d$$

formula (2)

$$R_e(589.3) - R_e(480) \leq 45 \text{ nm}$$

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formula (3)

$$0.7 \leq R_e(480)/R_e(589.3) \leq 1.4$$

wherein, regarding the direction giving maximum refractive index in the plane of the optical compensation sheet as the X axis, the direction in the optical compensation sheet plane normal to the X axis as the Y axis, and the direction perpendicular to the optical compensation sheet plane as the Z axis, viewing the point (referred to also as the origin), at which the X, Y and Z axes intersect, from any point on the YZ plane perpendicular to the optical compensation sheet plane, and obtaining angle (θ) giving minimum of a retardation in the plane (R_e) at wavelength 590 nm represented by formula (1) above in the plane perpendicular to the viewing direction, retardation $R_e(589.3)$ in the plane perpendicular to the viewing direction at the wavelength 589.3 nm and retardation $R_e(480)$ in the plane perpendicular to the viewing direction at the wavelength 480 nm each are measured at angle (θ), and

wherein n_{x1} represents maximum refractive index at wavelength 590 nm in the plane perpendicular to the viewing direction, n_{y1} represents minimum refractive index at wavelength 590 nm in the plane perpendicular to the viewing direction, and d represents a thickness of the sheet.

8. (original): The optical compensation sheet of claim 1, comprising at least one support.

9. (original): The optical compensation sheet of claim 8, wherein one layer of the two optically anisotropic layers is provided on one side of the support and the other layer of the two optically anisotropic layers is provided on the other side of the support.

10. (original): The optical compensation sheet of claim 8, wherein the two optically anisotropic layers are provided on one side of the support.

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11. (original): The optical compensation sheet of claim 8, comprising two supports, wherein the two optically anisotropic layers are provided between the two supports.

12. (original): The optical compensation sheet of claim 8, wherein the support is transparent and substantially optically isotropic.

13. (original): The optical compensation sheet of claim 8, wherein the support is transparent and has a negative uniaxial optical property with the optic axis in the direction perpendicular to the optical compensation sheet plane.

14. (original): The optical compensation sheet of claim 13, wherein the support satisfies the following formulae (4) and (4'):

formula (4)

$$n_x^2 \geq n_y^2 > n_z^2$$

formula (4')

$$(n_x^2 - n_y^2)/n_x^2 \leq 0.01$$

wherein n_x^2 represents maximum refractive index in the plane of the support, n_y^2 represents refractive index in the plane of the support in the direction perpendicular to the direction giving n_x^2 , and n_z^2 represents refractive index in the support thickness direction.

15. (original): The optical compensation sheet of claim 14, wherein the support has a retardation (R_t) in the thickness direction of 5 to 250 nm.

16. (original): The optical compensation sheet of claim 8, wherein the support is comprised mainly of cellulose esters.

17. (original): The optical compensation sheet of claim 1, wherein at least one of the two optically anisotropic layers has a retardation (R_0) in the plane of 50 to 200 nm, R_0 being represented by formula (a):

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formula (a)

$$R_0 = (n_x - n_y) \times d$$

wherein n_x represents maximum refractive index in the plane of the optically anisotropic layer, n_y represents refractive index in the plane of the optically anisotropic layer in the direction perpendicular to the direction giving n_x , and d represents a thickness of the optically anisotropic layer.

18. (original): The optical compensation sheet of claim 1, wherein at least one of the two optically anisotropic layers satisfies the following:

when the direction normal to the optically anisotropic layer is regarded as 90 degrees, the direction parallel to the optically anisotropic layer and giving maximum refractive index in the plane of the optically anisotropic layer is regarded as zero degrees, and retardation is measured at an incident angle of from 0 to 90 degrees to the optically anisotropic layer, angle θ_a ($^\circ$), giving maximum retardation (R_e) in the plane at 590 nm represented by the following formula (1) in the plane perpendicular to the incident direction, is in the range of from more than zero degrees to less than 90 degrees, and the maximum value of retardation is in the range of from 65 to 250 nm,

formula (1)

$$R_e = (n_{x1} - n_{y1}) \times d$$

wherein n_{x1} represents maximum refractive index at 590 nm in the plane perpendicular to the incident direction, n_{y1} represents minimum refractive index at 590 nm in the plane perpendicular to the incident direction, and d represents a thickness of the optical compensation sheet.

19. (original): A liquid crystal display comprising a liquid crystal cell provided between a first polarizing plate and a second polarizing plate,

wherein an optical compensation sheet is provided either between the first polarizing plate and the liquid crystal cell or between the second polarizing plate and the liquid crystal cell, the optical compensation sheet comprising at least two optically anisotropic layers each formed by orienting an optically anisotropic compound, and

the orientation direction in the optically anisotropic layer plane of the optically anisotropic compound in the two optically anisotropic layers intersecting each other at an angle of from 80 to 100 degrees, and

wherein, viewing the two optically anisotropic layers from one side of the optical compensation sheet,

one of the two optically anisotropic layers, when the optically anisotropic compound is uniaxial, is oriented so that a first angle of the optic axis of the uniaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that a second angle of a direction giving maximum refractive index of the biaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, and

the other optically anisotropic layer, when the optically anisotropic compound is uniaxial, is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that the second angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

20. (original): The liquid crystal display of claim 19, wherein the orientation direction of one of the two optically anisotropic layers is substantially perpendicular to the transmission axis of the first polarizing plate and is substantially parallel to the transmission axis of the second polarizing plate, or the orientation direction of one of the two optically anisotropic layers is substantially perpendicular to the transmission axis of the second polarizing plate and is substantially parallel to the transmission axis of the first polarizing plate.

21. (previously presented): A polarizing plate for elliptically polarized light comprising the optical compensation sheet of claim 1.

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